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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/688,596	10/17/2003	Pedro Torres	36202	2098

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EXAMINER

TRINH, THANH TRUC

ART UNIT	PAPER NUMBER
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1753

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/688,596

Applicant(s)

TORRES ET AL.

Examiner

Thanh-Truc Trinh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 13-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claim 19 recites the limitation "said photovoltaic film" in lines 2-3 of the claim.

There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, 9-11, 13 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Shuto et al. (US Patent No. 6471816).

See Figures 1-6.

Regarding claims 1 and 11, (See Fig. 1 to 6), Shuto et al disclose a sealed electric power generating product including a base plate (10); a power generating film laminated (21) over the base plate; at least one contact portion (22) for contacting at least one pole (20a or 20c) of the power generating film; an electric conductor (lead wire

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30 and solder material) going through a blind hole 28 between the internal side of the base plate and the contact portion, the electric conductor is electrically connected with the contact portion; a sealing material (27 and 25) applied at an outer side of the base plate for sealing the solar cell and the blind hole, wherein the electric conductor is provided through the sealing material to the contact portion. The blind hole is a hole perforated through the base plate after the lamination of the power generating film over the base plate. The blind hole has lateral sides being even. (See Figures 1-6, col. 3 lines 44-67, col. 4 lines 1-68, col. 5 lines 1-42). Shuto et al. also teach the metal foil 22 can be cut slightly into (See col. 5 lines 1-24), thereby giving the metal foil 22 (or the contact portion) an even surface.

Regarding claim 2, Shuto et al. describe the contact portion (or metal foil 22) is provided on the upper side of the generating film 21 opposite the base plate, and the blind hole 28 traverses the base plate and the generating film. (See Figures 5b and 6)

Regarding claims 3 and 4, Shuto et al describe that the metal foils 22 are positioned above output terminals 20a and 20c, then attached under pressure and heat to electrically connect. (See col. 4 lines 12-21). Conductive paste output terminals are typically made of binding materials, such as polyimide or phenol based binders, and powder metals such as nickel, silver or aluminum (See col. 7 lines 24-26). Additionally, conductive paste output terminals run substantially the full length and on the right and left sides of the solar cells 11a, 11b, 11c. In other words, metallic bands of combination

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of output terminals and metal foils run substantially full length and on opposite sides of the power generating film. (See Fig. 1a, 2a, 3a, 4a, 5a). At least a lead wire 30 is solder attached to the metal foil 22 through the hole 28 on one side of the power generating film, therefore at least two lead wires (or electric conductors) go through two blind holes for connecting each metallic band. (See Fig. 5a-6 and col. 5 lines 40-43)

Regarding claim 9, Shuto et al disclose a power generating film 21 comprising a plurality of solar battery elements 11a, 11b, 11c. (See Fig. 2a and col. 3 lines 50-52, col. 3 lines 65-66 and col. 4 lines 1-4). In each element, there is at least one silicon layer. These silicon layers are on top of other flexible films such as transparent conductive layer, and on the substrate 10 that is made of polyimide.

Regarding claim 10, Shuto et al teach that transparent protective films 24 and 25 encapsulate over the solar module 1 (or photovoltaic cell) on the front and back, respectively. (See col. 4 lines 38-42). The encapsulation layers are made of organic materials such as ethylene terephthalate (PET) or fluoroplastics. (See col. 4 lines 42-43).

Regarding claim 13, Shuto et al. describe the electric conductor (30) is electrically connected with the contact portion via a weld (or solder). (See Figure 6 and col. 5 lines 40-43)

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Regarding claim 15, Shuto et al. describe the contact portions (or metal foils 22) are cover with solder platings. (See col. 4 lines 19-23). The solder platings are inherently made of metal. Therefore, the contact portions are locally reinforced with a supplementary layer of metal.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shuto et al in view of Nagao et al (US Patent No.6670541).

Regarding claims 5-8, Shuto et al disclose solar cell modules as described in claim 1.

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Shuto et al do not specifically teach the base plate is rigid, nor do they teach that the plate comprises one insulator between two layers of metal. Shuto et al also do not teach that the base plate is specifically suitable for covering external building walls.

Nagao et al teach the plate (or back cover) is rigid, possibly made of metal or formed by sandwiching a film between metal layers such as aluminum foils. (See col. 5 lines 53-55). In addition, the plate is suitable for covering external building walls. (See col. 1 lines 7-8, and Fig. 11, 13A-D, 14).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the module of Shuto et al by applying a rigid base plate comprising an insulator layer between two layers of metal as taught by Nagao et al, because it would provide a superior and effective photovoltaic back over in protecting, reinforcing and preventing hazards from environment. (See Nagao et al, col. 5 lines 49-61).

6. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shuto et al. (US Patent 6471816) in view of Thedieck (US Patent 2842724).

Regarding claim 14, Shuto et al. describe a sealed electric power generating product as described in claim 1.

Shuto et al. do not teach the bottom of the blind hole is a conical shape.

Thedieck teaches the bottom of the blind hole is a conical shape. (See Figures 1-8).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the product of Shuto et al. by having the bottom of the blind hole in conical shape as taught by Thedieck, because it would increase the stability. (See col. 1 lines 15-70 of Thedieck).

In addition, it would certainly have been obvious to one having ordinary skill in the art at the time the invention was made to modify the structure of Shuto et al. by having the bottom of the blind hole in conical shape, because the conical bottom of the blind hole corresponds to the tip of the drill bit or cutter, and the choice of a drilling or cutting device with a conical tip would have been typical and well within the level of ordinary skill in the art.

7. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shuto et al. in view of Mimura et al. (US Patent 6182403).

Regarding claim 16, Shuto et al. disclose a sealed electric power generating product as described in claim 1 with a plurality of blind holes.

Shuto et al. do not teach using a plurality of junction boxes, wherein each one of the junction boxes is mounted over a corresponding one of the blind holes.

Mimura et al. et al. teach using a plurality of junction boxes 405, wherein each one of the junction boxes is mounted over a corresponding hole 406 with output lead 407. (See Figure 4 and col. 9 lines 45-54)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the product of Shuto et al. by using a plurality of junctions

boxes with each mounted over a corresponding blind hole as taught by Mimura et al., because it would provide cover for the blind hole and housing terminal for drawing power out of the product. (See col. 9 lines 45-54 of Mimura et al.)

8. Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shuto et al. (US Patent 6471816) in view of Thedieck (US Patent 2842724).

Regarding claim 17, Shuto et al. describe a sealed electric power generating product including a base plate (10); a power generating film (21) laminated over the base plate; at least one contact portion (22) for contacting at least one pole (20a or 20c) of the power generating film; an electric conductor (lead wire 30 and the solder material) going through a blind hole between the internal side of the base plate and the contact portion, the electric conductor being electrically connected with the contact portion via a weld (or a solder) and the blind hole having substantially even sides; a sealing material (27 and 25) applied at an outer side of the base plate for sealing the blind hole, wherein the electric conductor is provided through the sealing material to the contact portion at the weld.

Shuto et al. do not teach the blind hole having a bottom with a conical shape.

Thedieck teaches the bottom of the blind hole is a conical shape. (See Figures 1-8).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the product of Shuto et al. by having the bottom of the

blind hole in conical shape as taught by Thedieck, because it would increase the stability. (See col. 1 lines 15-70 of Thedieck).

In addition, it would certainly have been obvious to one having ordinary skill in the art at the time the invention was made to modify the structure of Shuto et al. by having the bottom of the blind hole in conical shape, because the conical bottom of the blind hole corresponds to the tip of the drill bit or cutter, and the choice of a drilling or cutting device with a conical tip would have been typical and well within the level of ordinary skill in the art.

Regarding claims 18, Shuto et al disclose a power generating film 21 comprising a plurality of solar battery elements 11a, 11b, 11c. (See Fig. 2a and col. 3 lines 50-52, col. 3 lines 65-66 and col. 4 lines 1-4). In each element, there is at least one silicon layer. These silicon layers are on top of other flexible films such as transparent conductive layer, and on the substrate 10 that is made of polyimide.

Regarding claim 19, Shuto et al. disclose a transparent encapsulation layer 24 over the power generating film. The encapsulation layer is made of an organic material. (See Figure 4b, 5b, 6 and col. 4 lines 38-55).

9. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shuto et al. in view of Thedieck and further in view of Mimura et al. (US Patent 6182403).

Regarding claim 20, Shuto et al. and Thedieck disclose a sealed electric power generating product as described in claim 17, wherein the product comprises a plurality of blind holes (See Figures 1-6).

Neither Shuto et al. nor Thedieck teach comprising a plurality of junction boxes, wherein each junction box is mounted over a corresponding blind hole.

Mimura et al. et al. teach using a plurality of junction boxes 405, wherein each one of the junction boxes is mounted over a corresponding hole 406 with output lead 407. (See Figure 4 and col. 9 lines 45-54)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the product of Shuto et al. and Thedieck by using a plurality of junctions boxes with each mounted over a corresponding blind hole as taught by Mimura et al., because it would provide cover for the blind hole and housing terminal for drawing power out of the product. (See col. 9 lines 45-54 of Mimura et al.)

Response to Arguments

Applicant's arguments filed March 1, 2007 have been fully considered but they are not persuasive.

Applicant argues that Shuto et al. do not teach "a sealing material applied at an outer side of the base plate, wherein said electric conductor is provided through said sealing material to said contact portion." Applicant cites Figure 6 and col. 8, lines 37-42, of Shuto et al. notes that Shuto et al. fill the blind hole completely with a conductive material, and the lead wire is attached to the solder without going through the solder.

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However, this argument is not deemed to be persuasive because, as noted above in the rejection, the sealing material comprising layer 25 and 27 is applied at an outer side of the base plate, wherein the electric conductor including conductive solder and wire 30 is provided through the sealing material to contact portion. In other words, Shuto et al. teach the limitation of the claims, therefore the reference is deemed to be anticipatory.

Applicant argues that "Nothing in the reference teaches any uneven bottom surface at the contact portion." It is the Examiner's position that Shuto et al. do teach uneven bottom surface at the contact portion as describing the metal foil of contact portion being cut slightly into. (See col. 5 lines 1-24).

Applicant argues that "The Examiner erroneously gives no patentable weight to the limitation that 'said blind hole is a hole perforated through said base plate after the lamination of said power generating film over said base plate'" and "The Examiner has failed to consider such implied structure, and instead has improperly ignored the claim limitation entirely." This is not true. Shuto et al. clearly teach step by step that the process of forming a blind hole is after the lamination process. (See col. 4 lines 38-67 and col. 5 lines 1-39). Further, the Examiner does show the implied structure (the blind hole) is found in the prior art. However, the Applicant has not provided any evidence to show an unobviousness difference. Therefore, the rejection is maintained.

Applicant further argues that "the Examiner has not provided the proper motivation for combining the references", "Merely listing an advantage or benefit of the combination is not sufficient" and "The advantage cited by the Examiner is general and does not lead one skilled in the art to make the particular modification suggested by the

Examiner.” The Examiner’s reply is that an advantage or benefit of the combination, even a general one, is the essence of obviousness. The advantage or benefit is something in the prior art as a whole to suggest the desirability, and thus providing a proper motivation to combine.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

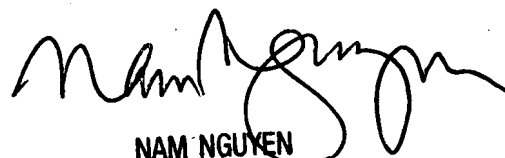
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh-Truc Trinh whose telephone number is 571-272-6594. The examiner can normally be reached on 8:30 am - 5:00 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TT
5/11/2007


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